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1922/23

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COURSES FOR GRADUATES

ANNOUNCEMENT OF THE

SCHOOL OF TROPICAL MEDICINE

HARVARD MEDICAL SCHOOL

BOSTON, MASS.

1922–23

PUBLISHED BY HARVARD UNIVERSITY
CAMBRIDGE, MASS.

STATE UNIVERSITY.

SCHOOL OF TROPICAL MEDICINE

OF

HARVARD UNIVERSITY

CATALOGUE AND ANNOUNCEMENT

1922–23

HARVARD SCHOOL OF TROPICAL MEDICINE
240 Longwood Avenue, Boston, Mass.
1922

1922

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CONTENTS

	PAGE
Calendar	4
President and Fellows of Harvard College	5
The Board of Overseers of Harvard College	6
Officers of Instruction	8
Organization	9
General Information	11
Requirements for Admission	15
Application and Registration	16
Diploma and Degrees	16
Bond Required of Students	19
Fees	20
Library	20
Fellowships	20
Description of Courses	21
Schedule of Courses	26

CALENDAR

1922

Sept. 25, Monday. **Academic Year begins.** Registration of Students. Payment of the tuition-fee is required on or before this date.

Oct. 12, Thursday. Columbus Day: a holiday.

Nov. 30, Thursday. Thanksgiving Day: a holiday.

Recess from Dec. 23, 1922, through Jan. 2, 1923.

1923

Jan. 1, Monday. New Year's Day: a holiday.

Feb. 22, Thursday. Washington's Birthday: a holiday.

Recess from April 16 through April 21.

May 30, Wednesday. Memorial Day: a holiday.

May 31, Thursday. School session ends.

June 21, Thursday. Commencement.

Summer Vacation from Commencement through September 22.

THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE

This Board is commonly known as the CORPORATION.

PRESIDENT

ABBOTT LAWRENCE LOWELL, A.B., LL.B., LL.D., PH.D.
17 Quincy St., Cambridge

FELLOWS

HENRY PICKERING WALCOTT, A.B., M.D., LL.D.
11 Waterhouse St., Cambridge

THOMAS NELSON PERKINS, A.B., LL.B. 60 State St., Boston

WILLIAM LAWRENCE, A.B., D.D., LL.D., D.C.L.
122 Commonwealth Ave., Boston

JOHN FARWELL MOORS, A.M., LL.D. 32 Mt. Vernon St., Boston

JAMES BYRNE, A.B., LL.B. 24 Broad St., New York, N.Y.

TREASURER

CHARLES FRANCIS ADAMS, A.B., LL.B. 50 State St., Boston

DEPUTY TREASURER

GORHAM BROOKS, A.B. 50 State St., Boston

SECRETARIES TO THE CORPORATION

FRANCIS WELLES HUNNEWELL, A.B., LL. B.
5 University Hall, Cambridge

FREDERICK LEWIS ALLEN, A.M. 5 University Hall, Cambridge

THE BOARD OF OVERSEERS

The PRESIDENT and TREASURER of the University, *ex officio*, and the following persons by election: —

1922*

WILLIAM THOMAS, A.B., LL.B. 310 Sansome St., San Francisco, Cal.

HOWARD ELLIOTT, C.E. 34 Nassau St., New York, N.Y.

JOHN PIERPONT MORGAN, A.B. 23 Wall St., New York, N.Y.

ELIOT WADSWORTH, A.B. 1718 H St., Washington, D. C.

FRANCIS LEE HIGGINSON, JR., A.B. 44 State St., Boston

1923

FRANCIS JOSEPH SWAYZE, A.M., LL.D.
765 High St., Newark, N.J.

LEONARD WOOD, M.D., LL.D., D.C.L., M.S.D.
Manila, Philippine Islands

ARTHUR WOODS, A.M. 165 East 74th St., New York, N.Y.

JEROME DAVIS GREENE, A.M. 43 Exchange Place, New York, N.Y.

FRANKLIN DELANO ROOSEVELT, A.B., LL.D. Hyde Park, N.Y.

1924

HENRY CABOT LODGE, PH.D., LL.B., LL.D.
United States Senate, Washington, D.C.

GEORGE WIGGLESWORTH, A.M., LL.B. 40 Central St., Boston

FRANCIS RANDALL APPLETON, A.B., LL.B.
26 E. 37th St., New York, N.Y.

IRA NELSON HOLLIS, A.M., L.H.D., S.D.
Worcester Polytechnic Institute, Worcester

PAUL REVERE FROTHINGHAM, A.M., S.T.B.
294 Beacon St., Boston

* The term expires, in each case, on Commencement Day of the year indicated.

1925

EDWARD HICKLING BRADFORD, A.M., M.D.
220 Beacon St., Boston

OWEN WISTER, A.M., LL.B., LL.D., L.H.D.
1004 West End Trust Building, Philadelphia, Pa.

JULIAN W. MACK, LL.B. Woolworth Building, New York, N.Y.

THOMAS WILLIAM LAMONT, A.B. 23 Wall St., New York, N.Y.

ELLERY SEDGWICK, A.B. 8 Arlington St., Boston

1926

WILLIAM ROSCOE THAYER, A.M., LL.D., L.H.D., Litt.D.
8 Berkeley St., Cambridge

EDWIN FRANCIS GAY, Ph.D., LL.D.
1261 Madison Ave., New York, N.Y.

LOUIS ADAMS FROTHINGHAM, A.B., LL.B.
House of Representatives, Washington, D. C.

NORWOOD PENROSE HALLOWELL, A.B. 44 State St., Boston

ROGER WOLCOTT, 60 State St., Boston

1927

EDGAR CONWAY FELTON, A.B. Haverford, Pa.

HOMER GAGE, A.B., M.D., A.M. 8 Chestnut St., Worcester

LANGDON PARKER MARVIN, A.B., A.M., LL.B.
52 Wall St., New York, N.Y.

JAMES JACKSON, A.B. State House, Boston

CHARLES H. BRENT, S.T.D. 237 North St., Buffalo, N.Y.

SECRETARY OF THE BOARD OF OVERSEERS

WINTHROP HOWLAND WADE, A.M., LL.B. 99 State St., Boston

OFFICERS OF INSTRUCTION

Richard P. Strong, Ph.B., M.D., Sc.D., *Professor of Tropical Medicine.*

Milton J. Rosenau, M.D., A.M., *Charles Wilder Professor of Preventive Medicine and Hygiene.*

George H. Parker, S.D., *Professor of Zoölogy*, and *Director of the Zoölogical Laboratory.*

William M. Wheeler, Ph.D., S.D., *Professor of Economic Entomology*, and *Dean of the Faculty of the Bussey Institution.*

Robert DeC. Ward, A.M., *Professor of Climatology.*

Ernest E. Tyzzer, A.M., M.D., *George Fabyan Professor of Comparative Pathology.*

Oakes Ames, A.M., *Assistant Professor of Botany, Bussey Institution.*

Cleaveland Floyd, M.D., *Silas Arnold Houghton Assistant Professor of Bacteriology.*

S. Burt Wolbach, M.D., *Shattuck Professor of Pathological Anatomy.*

Marshal Fabyan, A.B., M.D., *Assistant Professor of Comparative Pathology.*

Charles T. Brues, S.M., *Assistant Professor of Economic Entomology.*

George Ç. Shattuck, M.D., A.M., *Assistant Professor of Tropical Medicine.*

Andrew Watson Sellards, A.M., M.D., *Assistant Professor of Tropical Medicine.*

Thomas Barbour, A.B., A.M., Ph.D., *Associate Curator of Reptiles and Amphibians.*

William E. Deeks, M.D., M.A., *Lecturer on Tropical Medicine.*

Carlos Chagas, M.D., A.M., *Lecturer on Tropical Medicine.*

A. Hamilton Rice, A.M., M.D., *Lecturer on the Diseases of South America.*

Harvey P. Towle, A.B., M.D., *Associate in Dermatology.*

William T. Bovie, Ph.D., *Research Fellow in Bio-Physics.*

Bunshiro Tanabe, M.D., *Research Fellow in Tropical Medicine.*

Cesar Uribe y Piedrahita, *Corresponding Fellow.*

ORGANIZATION OF THE SCHOOL OF TROPICAL MEDICINE

ABBOTT LAWRENCE LOWELL, A.B., LL.B., LL.D., PH.D., PRESIDENT OF HARVARD UNIVERSITY.

DAVID L. EDSALL, A.M., M.D., S.D., DEAN OF THE HARVARD MEDICAL SCHOOL.

ADMINISTRATIVE OFFICERS

RICHARD P. STRONG, PH.B., M.D., SC.D., DIRECTOR, AND PROFESSOR OF TROPICAL MEDICINE.

SAMUEL R. MEAKER, A.B., M.D., M.R.C.S., SECRETARY OF THE COURSES FOR GRADUATES.

CATHERINE M. CASASSA, S.B., SECRETARY OF THE SCHOOL OF TROPICAL MEDICINE.

CONSULTING BOARD

MILTON J. ROSENAU, M.D., A.M., PROFESSOR OF PREVENTIVE MEDICINE AND HYGIENE.

WILLIAM M. WHEELER, PH.D., S.D., PROFESSOR OF ECONOMIC ENTOMOLOGY.

ERNEST E. TYZZER, PH.B., A.M., M.D., PROFESSOR OF COMPARATIVE PATHOLOGY.

S. BURT WOLBACH, M.D., PROFESSOR OF PATHOLOGICAL ANATOMY.

THOMAS BARBOUR, A.B., A.M., PH.D., ASSOCIATE CURATOR OF REPTILES AND AMPHIBIANS.

Office

The office of the Harvard School of Tropical Medicine is at the office of the Director, Professor Richard P. Strong, Harvard Medical School, Building D, Room 229, 240 Longwood Avenue, Boston, where the business of the School relating to admission of candidates, selection of courses, etc., is conducted.

The offices of the Dean of the Harvard Medical School, Dr. David L. Edsall; and of the Secretary, Courses for Graduates, Dr. Samuel R. Meaker, are in the Harvard Medical School, Administration Building, 240 Longwood Avenue, Boston, Mass., where the routine business of the School is conducted. The office hours of the Secretary, Courses for Graduates, are from 12 to 1 daily except Saturday.

GENERAL INFORMATION

The courses in the Harvard School of Tropical Medicine will begin September 25, 1922, and will continue until June 1, 1923. The courses will be open to graduates from recognized medical schools. Properly qualified students (not necessarily graduates of medicine) will be admitted to single courses, or to any number of courses which they may care to select from the various subjects offered. The School aims to give an adequate preparation to those physicians who intend to practice where tropical or exotic diseases may be prevalent or occasionally encountered, and to those who wish to broaden the general field of their medical knowledge, to pursue original investigations in relation to exotic medicine, or to organize prophylactic measures against infectious diseases.

No training will assist more the general medical student and investigator in his understanding of modern scientific medicine, or give him a wider grasp of the subject than a training in tropical medicine and its allied branches, protozoölogy, helminthology, entomology, and bacteriology, which subjects really form the groundwork of exotic medicine, and can best be taught in connection with it.

Opportunities in Tropical Medicine

With the territorial expansion of the United States begun in 1898, and with the subsequent acquisition by our government of tropical possessions, both in the eastern and western hemispheres, and with our greatly increased trade relations with many other tropical and subtropical countries, new demands were created for an accurate knowledge of the diseases prevailing in these countries, and for their prevention. There then came an urgent need for well trained men, both for the investigation of these problems in the tropics, and for the introduction of proper sanitary measures in these regions in relation to preventive medicine. Up to the present time it has not been possible to supply men always who have been properly fitted for this work, or those who are best qualified to carry it on most successfully.

In no field of medicine will the student of today find greater opportunities for original investigation than in exotic medicine.

Students interested in public health work should also consider that while so much has been done in the discovery of the causes of tropical diseases, the most profitable application of these researches obviously lies in the direction of prevention. The opportunities in public health work in exotic countries are much more abundant than in this one, and the triumphs which have been obtained in preventive medicine in tropical and subtropical regions are even more brilliant than those which have been obtained in temperate ones. Students with the missionary spirit should bear in mind that the opportunities in exotic countries for medical work from a humanitarian standpoint cannot be equalled.

Positions Available

In regard to positions available particularly for American physicians well trained in tropical and exotic medicine, it may be stated that in addition to the opportunities furnished for the practice of medicine in the southern United States and our tropical dependencies, our various civil government medical services furnish excellent opportunities in tropical and subtropical stations for physicians in hospital, public health, or laboratory work. The Rockefeller International Health Commission can also furnish a career to men properly trained in tropical medicine, and the United Fruit Company of New York and Boston has an extensive medical service under the direction of Dr. William E. Deeks, and likewise offers attractive opportunities to young men. Several other American firms with tropical interests have recently organized medical departments with hospitals and laboratories. The Gorgas Memorial Institute in Panama will also give opportunities for advanced clinical, laboratory, or field sanitary work, and the Harvard School of Tropical Medicine also has vacancies on its staff for competent workers in this subject.

Unusual Advantages of the School

The subjects embraced in the courses of study have been selected with the idea of giving the student a broad and thorough training in tropical and exotic medicine. One of the advantages which this University possesses for this work is its ability to offer the combined resources of a number of Departments and eminent teachers who are recognized authorities in their several subjects.

Besides the teachers from the Medical School and the Graduate School of Medicine, the following gentlemen from other Departments of the University will take part in the instruction: William M. Wheeler, Ph.D., S.D., Professor of Economic Entomology, and Dean of the Faculty of the Bussey Institution, and Charles T. Brues, S.M., Assistant Professor of Economic Entomology, who will teach Medical Entomology; Robert DeCourcy Ward, A.M., Professor of Climatology, who will teach Tropical Climatology; George H. Parker, S.D., Professor of Zoölogy and Director of the Zoölogical Laboratory, who will teach General Zoölogy; Oakes Ames, A.M., Assistant Professor of Botany (Bussey Institution), who will give instruction on Tropical Plants; William T. Bovie, Ph.D., Research Fellow in Bio-Physics, who will lecture on Tropical Sunlight; and Thomas Barbour, Ph.D., Associate Curator of Reptiles and Amphibians, who will give a course on Venomous Animals.

Arrangements have been made through the Dean of the Faculty of Arts and Sciences of the University, for instruction in Spanish to those students who anticipate practising in Spanish-speaking countries and who desire a conversational and reading knowledge of this language.

The collections of the Medical School and of other Departments of the University contain much valuable material for the study of exotic and tropical diseases, and such material will be continually added to by expeditions sent to the tropics for this purpose.

Notable among these have been the expeditions sent to Ecuador and Peru in 1913, particularly in connection with yellow fever, Oroya fever, and verruga peruviana; to Central America in 1914 in relation to malaria; to Serbia and Macedonia in 1915 particularly in regard to typhus fever; and four expeditions to Colombia, Brazil, Peru, and Guatemala respectively in 1916, from which there resulted a rich supply of zoölogical and pathological material from these countries for study and investigation. During the period of the War the members of the staff were employed in military duty in the Medical Department of the Army, particularly with reference to the prevention and control of infectious diseases, — typhus fever, trench fever, and measles being especially investigated. In the summer of 1920 an expedition was sent to Santo Domingo

in connection with the study and control of yaws. During the year 1921–22 Professor A. W. Sellards has been engaged in research and the collection of tropical medical material in the Philippine Islands and in Japan. Dr. Thomas Barbour has also conducted an expedition in the province of Darien, Panama, for scientific study and the collection of material, while Dr. Strong has carried on investigations in the different provinces of Panama, and in Costa Rica. The laboratory facilities of the Harvard Medical School are unequalled, and with these facilities and teachers the training in laboratory diagnosis so important in tropical medicine will be especially thorough.

Dr. George C. Shattuck was appointed Assistant Professor of Tropical Medicine in 1921, and placed in charge of the Service for tropical diseases at the Boston City Hospital recently established by the Trustees of that institution. Boston is one of the most important seaports of the country, and many cases of tropical diseases are received in its hospitals annually. Dr. Shattuck has recently made a statistical study which demonstrates that in the past four or five years over 1100 cases of tropical diseases have been recorded either by the Massachusetts State Department of Health, or in the records of some of the larger hospitals of Boston. Obviously these are minimal figures, and the number of cases of tropical diseases will undoubtedly increase with the further development of trade routes through the Panama Canal. Boston has recently been made a port of entry for the Chinese into the United States, and this fact has already brought to the clinic an increased number of cases of exotic diseases from China. The Massachusetts General Hospital has also established a sub-department of tropical medicine with Dr. Sellards, Assistant Professor of Tropical Medicine, in charge. Dr. Strong also acts as Consultant for cases of tropical diseases both at the Massachusetts General Hospital and the Boston City Hospital. Through these arrangements and through the courtesies of the officials of the U. S. Marine Hospital, the Naval Hospital, and the immigration authorities, it has been found possible to concentrate the cases of tropical diseases and thus greatly increase the clinical opportunities for students.

Unusual and special opportunities will be afforded those students who in addition to obtaining the Diploma in Tropical Medicine wish to pursue their studies further, or those who are candidates

for a degree in connection with Tropical Medicine. The Director of the Harvard School of Tropical Medicine also holds the position of Director of the Laboratories of the Hospitals and of Research Work of the United Fruit Company, and by arrangement with the Director of this Company, and of Dr. William E. Deeks, General Superintendent of the Medical Department, a limited number of such students may be sent to stations of the United Fruit Company in Central America to further pursue clinical or laboratory work. The Medical Service of this Company covers nine tropical countries equipped with hospitals, laboratories, and field dispensaries. The number of patients cared for last year by the Medical Department of this Company was 208,000, among whom there were over 36,000 cases of malaria.

Dr. Strong is also the Scientific Director of the Gorgas Memorial Institute of Tropical and Preventive Medicine. Opportunities for the pursuit of original investigations relating to tropical bacteriology, pathology, protozoölogy, helminthology, entomology, biological chemistry, pharmacology, and plant pathology, will also be given at the Gorgas Memorial Institute to students who are candidates for a higher degree. Such students will be permitted after spending at least one year in residence at the Harvard School, to devote themselves to some practical problem either in the laboratory or in field sanitary work in Panama, which may serve as the subject of the thesis necessary for the degree in question.

REQUIREMENTS FOR ADMISSION

The School of Tropical Medicine will be open to graduates from recognized medical schools. Properly qualified students (not necessarily graduates of medicine) will be admitted to single courses or to any number of courses which they may care to select from the various subjects offered. Students in the Harvard Medical School may also during their fourth year elect courses in the School of Tropical Medicine. The Diploma in Tropical Medicine will, however, not be granted to anyone not holding the degree of Doctor of Medicine from a recognized school, or to anyone who has not completed the entire courses in tropical medicine at this School, or passed the examinations for the same. The requirements for Degrees in connection with Tropical Medicine are given below.

Admission of Women

Women may be admitted to the School of Tropical Medicine on the same terms as men, and are equally eligible for the Diploma in Tropical Medicine.

APPLICATION AND REGISTRATION

Application for admission to the School should be made to the Director, and should be accompanied by a full statement of the applicant's qualifications, including his educational history and the statement as to whether he desires to take the entire course or individual courses. Such certificates as he may possess from other institutions should also be presented for examination. A statement should also be made as to whether he is a candidate for the Diploma or a Degree in connection with Tropical Medicine.

Each student before being admitted to courses of instruction must register at the office of the Secretary of the Courses for Graduates, Administration Building, Room 203, and in the office of the Secretary of the School of Tropical Medicine, Building D, Room 229.

Prompt enrolment is urged, since owing to conditions in some of the courses it will be practically impossible for students to enter after the opening day.

DIPLOMA AND DEGREES

Candidates who are graduates from the Harvard Medical School, or another Medical School of recognized standing, and who have completed the full course in tropical medicine, have passed all the required examinations for the same, and who have also complied with all other requirements, will be given a Diploma in Tropical Medicine.

Courses in Tropical Medicine leading to the degree of Doctor of Medical Sciences or Doctor of Philosophy in Bacteriology (concentrating in the bacteriology and pathology of the Tropical Diseases) from the Harvard Medical School are also open to students who comply with the requirements described for the degree of Doctor of Medical Sciences or Doctor of Philosophy.

Intensive work in Tropical Medicine may also be used as part of the program for a master's or doctor's degree in public health. The degrees of Master of Public Health and of Doctor of Public Health are administered by the Faculty of the School of Public Health in accordance with the following regulations. The tuition fee for candidates for these degrees is $300 per year.

Master of Public Health

The master's degree represents one year of advanced work following the equivalent to that for the bachelor's degree in Public Health. The candidate's program must be presented in writing and be approved by the Administrative Board. Candidates for this degree must spend a minimum of one year in residence at this University and attain a high degree of scholarship. The tuition fee for this degree is $300 per year.

Doctor of Public Health

The degree of Doctor of Public Health is open only to those who have recently received a doctor's degree M.D. from an approved medical school.

The requirements for the degree include laboratory work and field surveys or their equivalent. The candidate will select one principal field of work and at least three minor fields, such as Tropical Medicine, Sanitary Engineering, Vital Statistics, Epidemiology, Preventive Medicine, Bacteriology, Parasitology, Industrial Hygiene, Child Hygiene, Mental Hygiene, etc.

Candidates for the degree of Doctor of Public Health may pursue one of two courses: (1) they may plan their work as a preparation for either administrative or teaching positions, or (2) they may concentrate on the study and investigation of a special field.

Applicants must present their proposed programs in writing for approval before they will be accepted as candidates for the degree. Special programs will be arranged to suit individual cases. Consideration may be given for work done in other institutions and for public health experience. Studies leading to the degree need not be confined wholly to the School of Public Health, but may include work in any department of the University. Ordinarily the program of study for this degree will require two academic years, at least one of which must be spent in residence at this University.

The degree will not be given for mere faithful study for a prescribed time, not for fulfilment of a program, and never for miscellaneous studies, but only for high scholarly attainment.

Each candidate will be required to present a thesis upon an approved subject.

The final examinations will be oral and will consist of a searching inquiry into the candidate's attainments in his principal field and will also include the minor subjects and any other topic within the domain of hygiene and sanitation which will test the candidate's breadth of knowledge. The tuition fee for this degree is $300 per year.

Degree of Doctor of Medical Sciences

The degree of Doctor of Medical Sciences shall be administered by the Committee on Honors and Higher Degrees in Medical Sciences (with the exception of the members from Harvard College) which shall supervise the program of study leading to the degree, examine candidates and make recommendations to the Faculty of Medicine.

Candidates for the Doctorate of Medical Sciences must hold the bachelor's degree in arts or science from an approved college. They must be registered in the Harvard Medical School and have fulfilled all its entrance requirements. They shall complete with an honor grade the regular elementary courses offered by this School in Anatomy, Histology and Embryology, Physiology, Biological Chemistry, Bacteriology, Pathology, Pharmacology and Clinical Pathology, together with such other subjects as may be recommended by the Committee. In addition all candidates are required to have a reading knowledge of French and German. Ordinarily this preparatory training will be equivalent to the first two years of the course of study leading to the degree of M.D. Students who have completed all or a portion of this work in other approved medical schools may be admitted to candidacy upon presenting evidence that they have passed the above subjects or their equivalents with an honor grade, and upon passing the general examination described below.

Following the completion of this preliminary training the student shall devote himself for not less than two years to the intensive study of one of the fundamental medical sciences and to the preparation of a thesis. The thesis must show an original treatment of a fitting subject and give evidence of independent research.

There shall be two examinations for every candidate for this degree, a general examination, before entering upon the work of the last two years, covering the elementary medical sciences listed above; and a final examination, upon acceptance of the thesis, covering the particular medical science chosen as a special field.

The degree is obtainable at the end of not less than two years' study devoted exclusively to one of the medical sciences, following two years devoted to the preliminary courses outlined above. But it is not given for mere reason of faithful study for a prescribed time. It is given primarily on the ground of high attainment in a selected science.

Degree of Doctor of Philosophy

There has been established within the Faculty of Arts and Sciences a Division of Medical Sciences consisting of members of the Faculty of Medicine and of Arts and Sciences, which is to recommend to the Faculty of Arts and Sciences candidates for the degree of Ph.D. Work in Medical Sciences leading to this degree may be carried on in several of the laboratories of the Medical School by properly qualified students.

Candidates for the degree of Doctor of Philosophy must fulfill certain preliminary requirements, must devote to approved advanced studies not less than two years — at least one of which must be spent in residence at this University — and must pass general examinations and present an account of original work in an accepted thesis, before being granted the degree. Tuition fee for this degree is $250 per year.

Further information concerning this degree may be obtained from Dr. Reid Hunt, Chairman of the Division of Medical Sciences, Harvard Medical School.

BOND REQUIRED OF STUDENTS

If a student desires to rent a microscope a bond of $100 must be filed. Blank forms may be obtained at the office of the Courses for Graduates, Room 203, Administration Building. No officer or student of the University is accepted as a bondsman. Students will be held responsible for the payment of fees until they have notified the Secretary, Courses for Graduates, of their intention to withdraw from the School and have subsequently received their bond.

FEES

The tuition fee for candidates for the Diploma in Tropical Medicine, and for all other students pursuing all of the regular courses in the School, is $150 for the school year, and must be paid in advance on or before the first day of the opening of the School.

Special students who do not pay the regular fee must pay a special fee for each course taken. Bills for tuition will be issued at the office of the Secretary, Courses for Graduates, in the Administration Building of the Harvard Medical School, Room 203, and fees shall be paid at the Harvard Trust Company in Cambridge, Mass. Checks and money orders should be made payable to Harvard University.

Laboratory material and animals used in individual experiments by students may be charged for at cost.

The tuition fee for candidates for the degree of Master of Public Health or Doctor of Public Health is $300 per year, which fee should be paid at the office of the Secretary of the Harvard School of Public Health, Room 108, Administration Building, Harvard Medical School.

The tuition fee for candidates for the degree of Doctor of Philosophy is $250 per year, payable at the Harvard Trust Company in Cambridge, Mass.

LIBRARY

The central library of the Harvard Medical School with which the Library of the School of Public Health has been combined, is housed in Charles B. Porter Hall in the Administration Building, and is open to students in the School of Tropical Medicine from 9 A.M. to 10 P.M., and on Saturdays from 9 A.M. to 1 P.M. The present number of volumes in the library is 35,666, and in addition there are 71,393 pamphlets and 290 current periodicals kept on file.

FELLOWSHIPS

A limited number of fellowships of $1200 each have been offered in the Harvard School of Public Health which are open to specially qualified students in Tropical Medicine. Applications for fellowships should be filed with the Secretary of the School of Public Health at least four months prior to the opening of the School.

DESCRIPTION OF COURSES

701. General Zoölogy.

GEORGE H. PARKER, Professor of Zoölogy.

This course is intended for those who wish to obtain a comprehensive view of the subject, and to aid students in the courses in protozoölogy and helminthology. (Special courses in Zoölogy for women are arranged in Radcliffe College.)

702. Protozoölogy.

ERNEST E. TYZZER, Professor of Comparative Pathology.

The course in Protozoölogy will include a general discussion of the morphology and life history of the more important human protozoan parasites, such as the amoebae, flagellata (trypanosomes, the parasites of kala azar and oriental sore), sporozoa (malarial parasites) and ciliata. Their relations to their definitive and to intermediate hosts will also be discussed, together with phenomena of immunity. Methods for the cultivation of certain parasites and suitable procedures for collecting, staining, and mounting will be discussed.

703. Helminthology.

ERNEST E. TYZZER, Professor of Comparative Pathology.

The course in Helminthology will include the differentiation and classification of species, and instruction in collecting, preserving, staining, and mounting the parasites and their ova, and the cultivation of the parasites when possible. The human cestodes, trematodes and nematodes will be considered in detail. Certain species of the acanthocephala, the pentastomida and hirudinea will also be discussed.

704. Venomous Animals.

THOMAS BARBOUR, Associate Curator of Reptiles and Amphibians.

The course will include the natural history of the various groups of venomous animals (except insects) with special reference to the origin, distribution, and abundance of those species which are dangerous to man, with discussions regarding the means of extermination. The poisonous effects produced and the methods of treatment will also be considered. The work will include lectures, outside reading, and a short report.

705. Tropical Plants with Reference to Their Bearing on Tropical Medicine.

OAKES AMES, Assistant Professor of Botany.

This course will consist of lectures and demonstrations on the more important poisonous plants of the tropics, and is planned to give a comprehensive survey of those branches of Economic Botany that will prove helpful in tropical regions.

706. **Medical Entomology.**

William M. Wheeler, Professor of Economic Entomology, and C. T. Brues, Assistant Professor of Economic Entomology.

This course will consist of a few general lectures on the structure and classification of the Arthropoda, followed by a more detailed account of the Arthropoda known to be concerned and likely to be concerned in the transmission of human and animal diseases or in the infliction of local injuries and physiological disturbances. Laboratory work and demonstrations will also constitute an important feature of the course and will provide for training in the dissection of insects, in the principal methods of studying their life histories and habits, and in their identification by means of dichotomic tables and from technical descriptions. The student will be provided with a list of most useful monographs and reference books on blood-sucking and disease-disseminating Arthropoda and should acquire an extensive acquaintance with this literature.

The following orders, families, and genera will be considered: —

1. Insecta, with particular reference to the Diptera, Suctoria, Siphunculata, Hemiptera, Hymenoptera, and Lepidoptera.
2. Myriopoda, including the Scolopendridae.
3. Arachnida, including the Scorpionidea, Araneina, and Acari.

707. **Bacteriology.**

S. Burt Wolbach, Professor of Pathological Anatomy; Cleaveland Floyd, Assistant Professor of Bacteriology; and Assistants.

This course will include the identification of the etiological factor and the diagnosis of the infection by laboratory methods, such as cultures, serum reactions, and the inoculation of animals, of the more important diseases including those of the tropics.

708. **Pathology of Tropical Diseases.**

S. Burt Wolbach, Professor of Pathological Anatomy.

This course will include the study of the macroscopic and histological lesions in the more important tropical diseases.

709. **Clinical Laboratory Work.**

Andrew Watson Sellards, Assistant Professor of Tropical Medicine.

This course will consist in a demonstration of the methods for obtaining and examining materials from tropical affections where a diagnosis may be made or aided by the microscope.

710. **Comparative Pathology of Tropical Diseases.**

Marshal Fabyan, Assistant Professor of Comparative Pathology

This course will consist of a discussion of the etiology, pathology and immunology of the more important infections of domestic animals which may pass to man.

711. Infectious Diseases.

Richard P. Strong, Professor of Tropical Medicine.

This course will consist of lectures, demonstrations, and laboratory work upon the more important infectious diseases particularly encountered in tropical and exotic countries. Special attention will be paid to the laboratory diagnosis of the various diseases considered.

712. Tropical Dermatology.

Harvey P. Towle, Associate in Dermatology.

The aim of this course will be to give the student the greatest possible acquaintance with the manifestations of diseases in the skin and practical experience in their interpretation and treatment.

The plan of instruction includes — a preliminary period of instruction in principles; regular, clinical demonstrations of diseases and disease types; observation of the daily clinic; constantly increasing student clinical work; and frequent, informal, class discussions of selected cases. Especial emphasis will be laid upon student work and upon its proper correlation to tropical dermatology.

The facilities for instruction and for clinical work are unusual. Special beds for cases of skin disease make close and continuous clinical observation easy while special and general laboratories invite special research. An out-patient clinic of from 60 to 90 visitants daily assures numbers and variety. The close association and constant interchange with the numerous other departments of a large general hospital emphasize, most desirably, the relationship of Dermatology to General Medicine.

With these favorable factors in association, it is felt that the student may, justifiably, be assured of the best conditions for the acquisition of such practical knowledge and experience with the comprehension and consequent treatment of skin manifestations as will enable him to handle such tropical forms as he is likely to encounter both logically and confidently.

713. Preventive Medicine and Hygiene.

Milton J. Rosenau, Professor of Preventive Medicine and Hygiene.

The course consists of

(*a*) Lectures and demonstrations.
(*b*) Laboratory work.
(*c*) Sanitary survey and sanitary excursions.

(*a*) The lectures and demonstrations give a bird's-eye view of the subject and cover the topics found in Rosenau's book on "Preventive Medicine and Hygiene."

(*b*) The laboratory work includes the important methods of sanitary analysis.

(*c*) The sanitary survey. Each student is required to make a sanitary survey of some neighboring town; reporting on all public health problems of that town, together with careful criticisms and suggestions for improvement.

Special work may be taken after consultation with the head of the Department.

714. Tropical Climatology.

Robert DeC. Ward, Professor of Climatology.

This course will include a consideration of the following topics: General relations of climate and health from the climatologist's standpoint. — Literature and bibliographies. — Explanation of the exposure and use of the ordinary meteorological instruments, with special reference to tropical countries. — General characteristics of tropical climates and their control: Climate and weather in the tropics; temperature; the seasons; pressure; winds and rainfall; land and sea breezes; thunderstorms; cloudiness; intensity of sky-light. — Climatic subdivisions: the equatorial belt; trade wind belts; monsoon belts; mountain climates. — Brief comparative study of the types of climate within the Tropical Zone, including a consideration of the varying conditions of the life of man as controlled by these different climates. — Climate and health in the tropics. — The climatologist's view of acclimatization in the tropics.

715. Tropical Sunlight.

William T. Bovie, Research Fellow in Bio-Physics.

This course will consist in a discussion of the biological effects of light and other forms of radiation, with special reference to those phenomena which affect living organisms, particularly in tropical countries.

716. Clinical Course in Tropical Diseases.

Andrew Watson Sellards, Assistant Professor of Tropical Medicine, and George C. Shattuck, Assistant Professor in Tropical Medicine.

This course will consist of ward rounds and demonstration of tropical diseases, and such other conditions in internal medicine as are of special interest in connection with the more purely tropical infections. Particular attention will be given to this work through the months of April and May, and also throughout the year as special occasion arises.

717. **Diseases of Tropical South America.**

A. Hamilton Rice, Lecturer on the Diseases of South America.

This course will include a discussion of the diseases of tropical South America, the geological and meteorological conditions considered both as a direct influence on the geographical distribution of disease and as an indirect agent owing to their effects upon the flora and fauna. Pests, parasites and poisons. Insects, fishes, reptiles and quadrupeds inimical to man. The indigenes, habits and customs of daily life in health and disease. Racial differences, respective adaptability of white, Indian, negro and mestizo to the trying climatic conditions and their idiosyncrasies as regards disease, drugs, alcohol, etc. The indigene problem, his conservation and improved euthenics by counteracting of untoward hereditary factors through favorable environmental influences. Personal hygiene and general tropical prophylaxis. Medical management of a tropical expedition of exploration and scientific inquiry.

HARVARD SCHOOL OF TROPICAL MEDICINE

Schedule of Courses, 1922–23

OCTOBER

Monday	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*
Pathology 9–12.30	Pathology 9–11	Pathology 9–12.30	Pathology 9–11	Pathology 9–12.30	Pathology 9–11
Bacteriology 2–5	Optional Spanish 2–3.30	Bacteriology 2–5	Optional Spanish 2–3.30	Bacteriology 2–5	

NOVEMBER

Pathology 9–12.30	Pathology 9–11	Pathology 9–12.30	Pathology 9–11	Pathology 9–12.30	Pathology 9–11
Bacteriology 2–5	Optional Spanish 2–3.30	Bacteriology 2–5	Optional Spanish 2–3.30	Bacteriology 2–5	

DECEMBER

Pathology 9–12.30	Venom. Anim. 9–11	Pathology 9–12.30	Venom. Anim. 9–11	Pathology 9–12.30	Venom. Anim. 9–11
	Comparative Pathology 12–1		Comparative Pathology 12–1		

Infectious Diseases, daily, 2–5.

JANUARY

Pathology 9–12.30	Pathology 9–11	Pathology 9–12.30	Pathology 9–11	Pathology 9–12.30	Pathology 9–11

Infectious Diseases, daily. 2–5

FEBRUARY

Monday	*Tuesday*	*Wednesday*	*Thursday*	*Friday*	*Saturday*
Clinical Laboratory 9–1		Clinical Laboratory 9–1		Clinical Laboratory 9–1	
	Climatology 11–1		Climatology 11–1		
Protozoölogy 2–5	Helminthology 2–5	Protozoölogy 2–5	Helminthology 2–5	Protozoölogy 2–5	

MARCH

Dermatology 9–10	Protozoölogy 9–1	Dermatology 9–10	Protozoölogy 9–1	Dermatology 9–10	Protozoölogy 9–1
Clinical Laboratory 10–1		Clinical Laboratory 10–1		Clinical Laboratory 10–1	
Hygiene 2–3	Hygiene 4–5		Hygiene 4–5	Hygiene 2–3	

APRIL

Clinical Work 9–1	Sunlight 9–10	Clinical Work 9–1	Sunlight 9–10	Clinical Work 9–1	
	Botany 10–11		Botany 10–11		
Hygiene 2–3	Hygiene 4–5	Entomology 2–5	Hygiene 4–5	Hygiene 2–3	
Entomology 3–5				Entomology 3–5	

MAY

Clinical Work, daily, 9–1

Hygiene 2–3	Hygiene 4–5	Entomology 2–5	Hygiene 4–5	Hygiene 2–3	
Entomology 3–5				Entomology 3–5	

UNIVERSITY OF ILLINOIS-URBANA
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These publications include: —

The Annual Reports of the President and of the Treasurer.

The Annual University Catalogue.

The Annual Catalogues of the College and the several Professional Schools of the University; the Descriptive Pamphlet; the Announcements of the several Departments; etc., etc.